

The juvenile stadia of *Anampses caeruleopunctatus* Ruppell (1829)

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ABSTRACT

Anampses caeruleopunctatus has been recorded in South Africa at Cape Vidal (1 specimen) at Durban (5 specimens) and at Port Elizabeth (2 specimens). Five of these showed the undescribed juvenile colour pattern. This pattern and the intermediate stages are described, with a brief discussion on distribution and habits of the species.

INTRODUCTION

In late February 1969, a labrid fish approximately 30 mm in length was taken in a dip-net off the Port Elizabeth harbour wall. This specimen remained unidentified until a second fish approximately 50 mm in length was taken in the same way off Humewood, Port Elizabeth two weeks later. Both specimens were kept under observation in the Port Elizabeth Oceanarium for several weeks. On the basis of photographs and drawings of the living fish, they were identified as juvenile *Anampses caeruleopunctatus* Ruppell.

In January 1970 a third specimen approximately 30 mm in length was collected at Cape Vidal, northern Natal by Mr R. van Els.

This species has previously been collected in South Africa at Durban by Bell-Marley (Smith, 1946) (one adult) and four juveniles in different stages (30—50 mm), taken by Dr A. Wright. The strikingly different colour patterns of the juvenile, intermediate and adult forms are described with comments on the species' distribution, and a brief discussion of observations on habits and habitat.

COLOUR DESCRIPTION

The juvenile colour pattern is shown by specimens up to approximately 40 mm in length. Three juveniles taken at Durban are shown in Plate Ia, b and c. The 30 mm specimen from Port Elizabeth is not shown as it is identical to that in Plate Ia. The Cape Vidal specimen is similar to that in Plate Ic.

The colour in the living juvenile may be pale green, emerald-green or brownish-green. The centre of almost every scale is marked with a faint whitish spot or ocellus. These ocelli are regular over most of the body, becoming smaller on the breast and the belly. Radiating in all directions from the eye are several brownish-green or brown lines which are more distinct anteriorly and ventrally. Not easily visible in the colour photographs, but readily seen in the Port Elizabeth specimen, is a single bluish bar connecting each eye across the interorbital.

Characteristic of the species at this stage are six white and three brown blotches on the

sides of the body. These occurred in fixed positions in all five juvenile specimens. Two white blotches occur at the level of the sixth dorsal spine, one scale row above and two rows below the lateral line respectively. The latter is adjacent and anterior to a brown blotch on the third scale row ventral to the lateral line. A single white blotch occurs at the level of the fifth dorsal ray, two scale rows ventral to the lateral line, anterior to the two brown blotches 3- and 6-scale rows ventral to the lateral line. The remaining two white blotches occur at the level of the ninth dorsal ray, on the second scale row on each side of the lateral line. At this point, the lateral line is midlateral. A smaller white blotch occurs in the dorsal midline of the caudal peduncle. This last spot is more distinct in the brownish-green specimens.

The dorsal fin is pale to dark brown, with unpigmented areas between the third and sixth dorsal spines and the fifth and eighth dorsal rays. The tips of the fin are edged with white, and the base of the fin is marked with an interrupted white line on the membrane. A similar, but more variable line marks the middle of the fin. A dark brown patch occurs on the last few rays. The anal fin is darker than the dorsal, and the white markings on the edge, middle and base of the fin are more distinct. The caudal fin is predominantly unpigmented posteriorly. Anteriorly, a variable yellowish-white band partially surrounds a darker, brown patch on the caudal peduncle. The pelvic fin is dark brown, and the pectorals are unpigmented except for a brown band across the base.

The change from the juvenile to the adult colour pattern occurs at a length of 40—50 mm, though these larger specimens do not show the full adult pattern as yet. The main changes are as follows:

The colour darkens to a dark olive-green or reddish-green. The lines radiating from the eye change to a more distinct ice-blue, as do the ocelli on the scales. The white lines, spots and edges of the fins also change to ice-blue. The distinctive six white and three brown blotches are obliterated by the change in background coloration, and the unpigmented areas on the dorsal fin disappear. These are masked by a progressive spread anteriorly of the dark brown patch on the last dorsal rays. The yellowish-white band on the caudal fin becomes bluish and is moved posteriorly by the spread of the dark brown on the caudal peduncle, until the entire fin is brown with a narrow bluish tip and upper and lower edges. The pectoral fin becomes slightly bluish, and the pelvic fin develops a blue outer margin with several blue spots or stripes on the fin membrane.

The intermediate form's colour pattern shown in Plate *Id* may be compared with the adult specimen in Plate II.

DISCUSSION

Labrid fish are typically tropical, and in most areas confined to a fairly narrow equatorial belt. However, along the coast of East and South Africa, the distribution of these and other fish is considerably extended owing to the effect of the warm and powerful westward Equatorial Current, part of which flows southward as the Mozambique Current, and finally, the Agulhas Current. Consequently, tropical and, in this case, Indo-Pacific forms occasionally occur as far south as Algoa Bay and Knysna.

A. caeruleopunctatus has been recorded from the Seychelles (Smith and Smith, 1963), Mauritius, and the East Indies as far as Tahiti (Fowler and Bean, 1928). It also occurs from the Red Sea down the east coast of Africa as far as Durban, which may be considered the normal limit of Indo-Pacific forms. It is almost certain then that the two Port Elizabeth specimens are strays carried several hundred miles from their normal limits by the Agulhas Current. Similar cases have been reported for juveniles of *Thalassoma purpurum* Forskal at 34° S, 24° E (Smith, 1957a), *Chrysoblephus puniceus* (Gilchrist and Thompson) at Knysna (Smith, 1943), *Porcostoma dentata* (Gilchrist and Thompson) at Natures Valley (Smith, M. M.

personal communication) and *Anthias squamipinnis* (Peters) at Port Elizabeth (personal observations) where the adults are unknown even as strays.

As very little is known of the habits and habitats of these fish, the few observations made seem worthwhile recording here. Both Port Elizabeth specimens were taken at a depth of ten feet, the smaller amongst concrete blocks on the breakwater, and the larger at the base of rocks adjoining open sand. While neither of these areas was well-covered with algal growth, the coloration and swimming habits of the juvenile suggest that it normally inhabits this type of growth. The juvenile, in particular, swam with its head slightly down, with slow undulating body movements reminiscent of a falling leaf. It always remained within a few inches of the sides or bottom of the tank, and moved comparatively little. Subsequently, observations were made on two live fish in the field. In July 1969, a pale green specimen was seen on several occasions over the same section of coral reef at Santa Carolina (21° 30' S, 35° 20' E) in 10 feet of water. This reef, though flat, had a large number of crevices in which the fish hid when approached, and the greenish algal growth on the coral provided camouflage. A brownish-green specimen was seen at Black Rock, Northern Natal (27° 10' S, 32° 50' E) in January 1970 in six feet of water, perfectly camouflaged in a bed of *Sargassum* sp. This fish retreated into the weed when a diver approached within a few feet. Both of these specimens swam in a similar way to those observed in captivity. The Port Elizabeth intermediate specimen was much more active, exploring the whole tank and swimming in a manner more typical of adult labrids. A similar case of camouflage in juvenile labrids is found in the brilliantly coloured young of *Coris gaimardi* Quoy, which resemble pieces of broken shell when they are at rest on the bottom (Smith, 1957b).

Owing to their striking colour patterns, labrid fish have been collected and described for many years and even in the comparatively poorly known western Indian Ocean, a new labrid species would be an event. It is not unknown, however, for juveniles of a known species to be given specific status (c.f., Smith, 1957b). Problems of this sort can only be solved effectively by the collection of large series of specimens or by observations of the living fish during growth. Again very little is known of sexual dimorphism in western Indian Ocean labrids. In view of the rarity of many of these fish the collection of large series or the rearing of captive fish is often difficult, and it is likely to be many years before these problems are solved.

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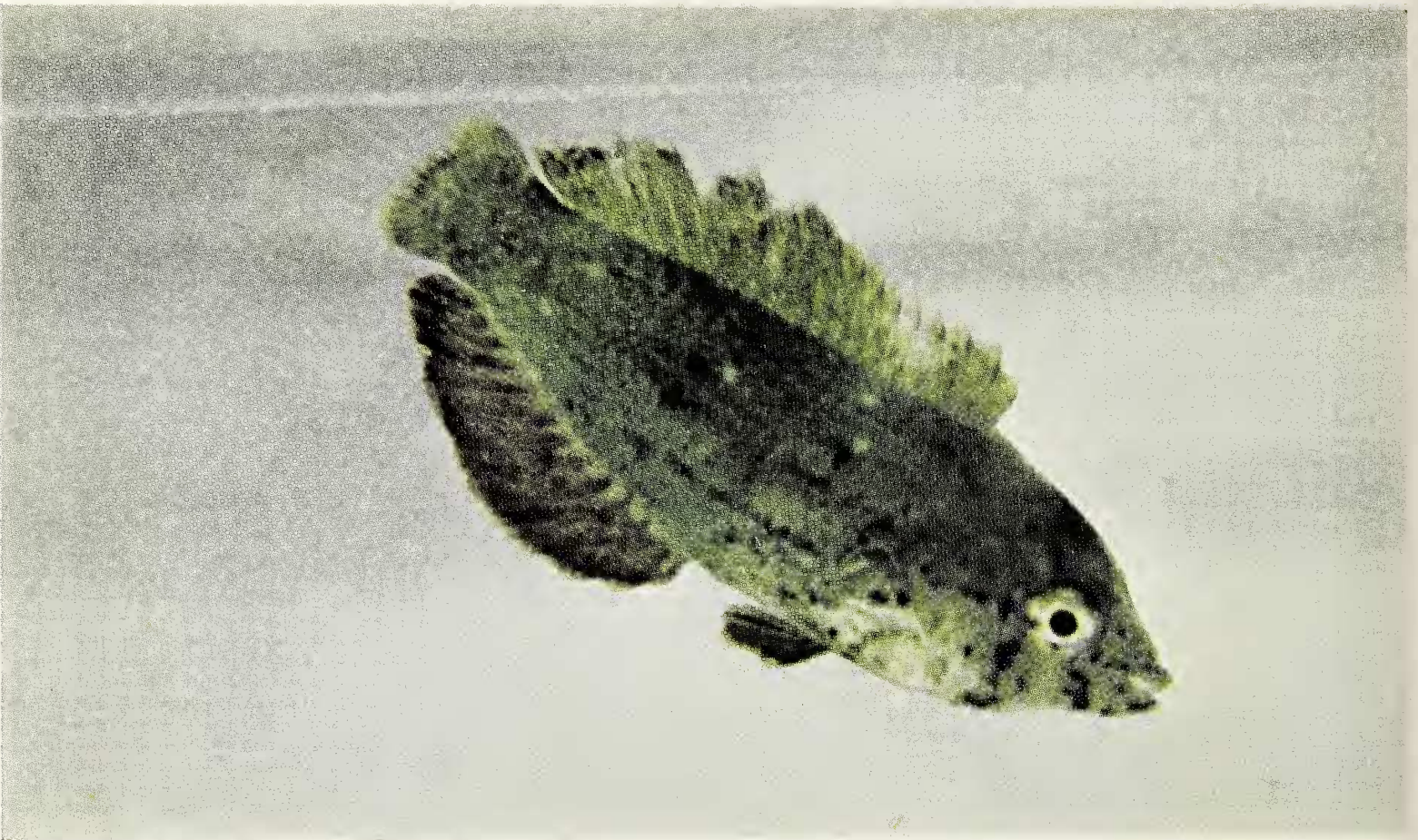
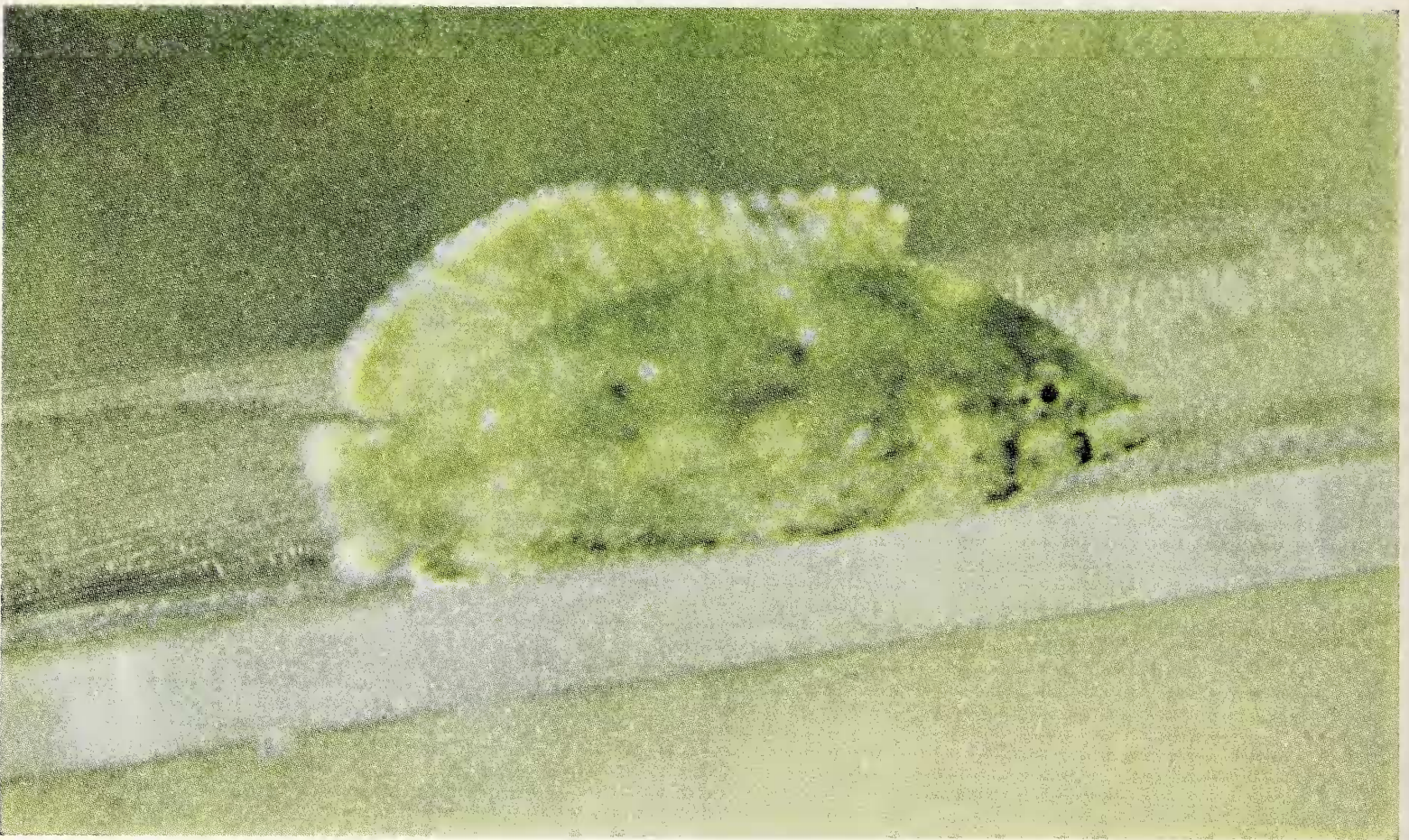
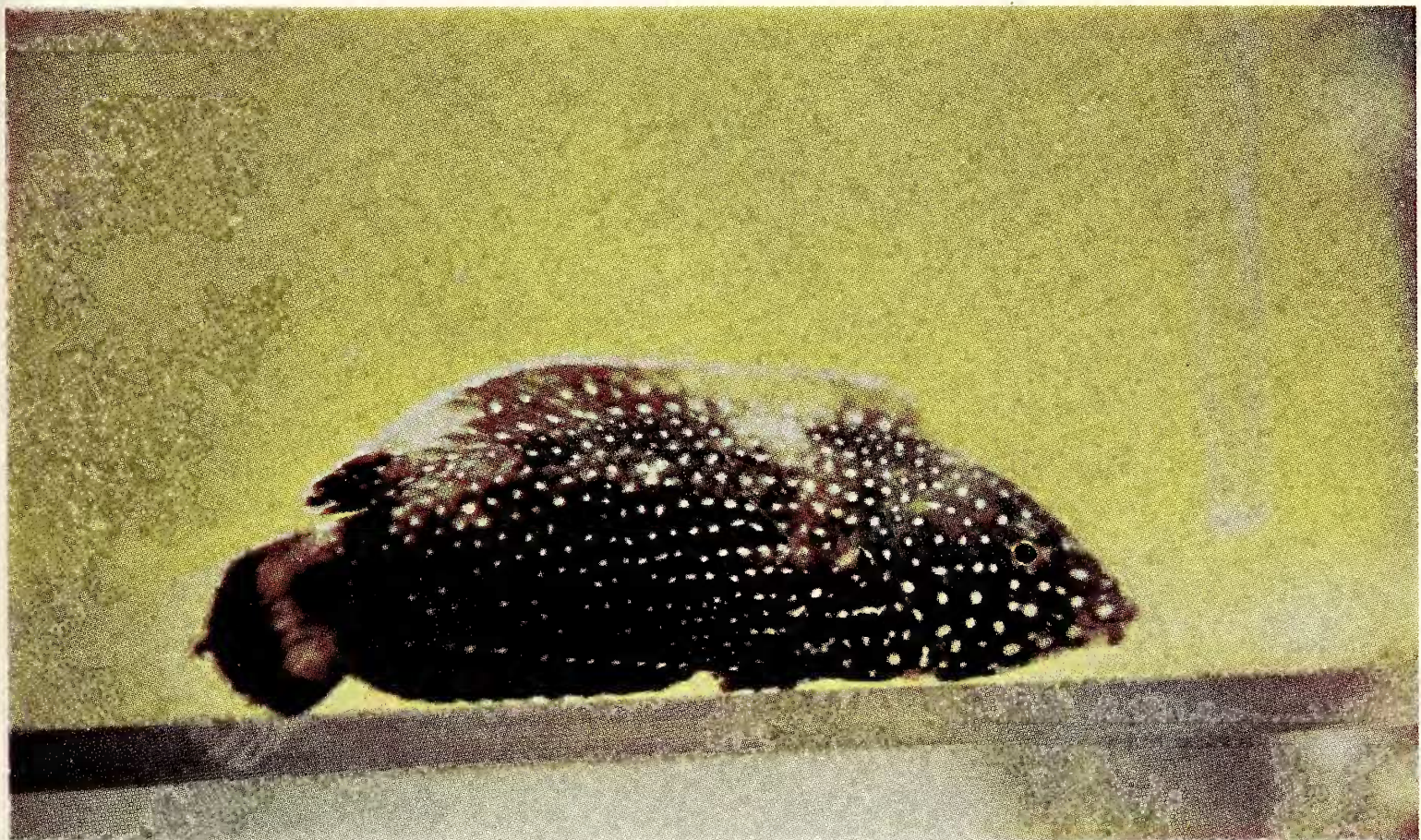
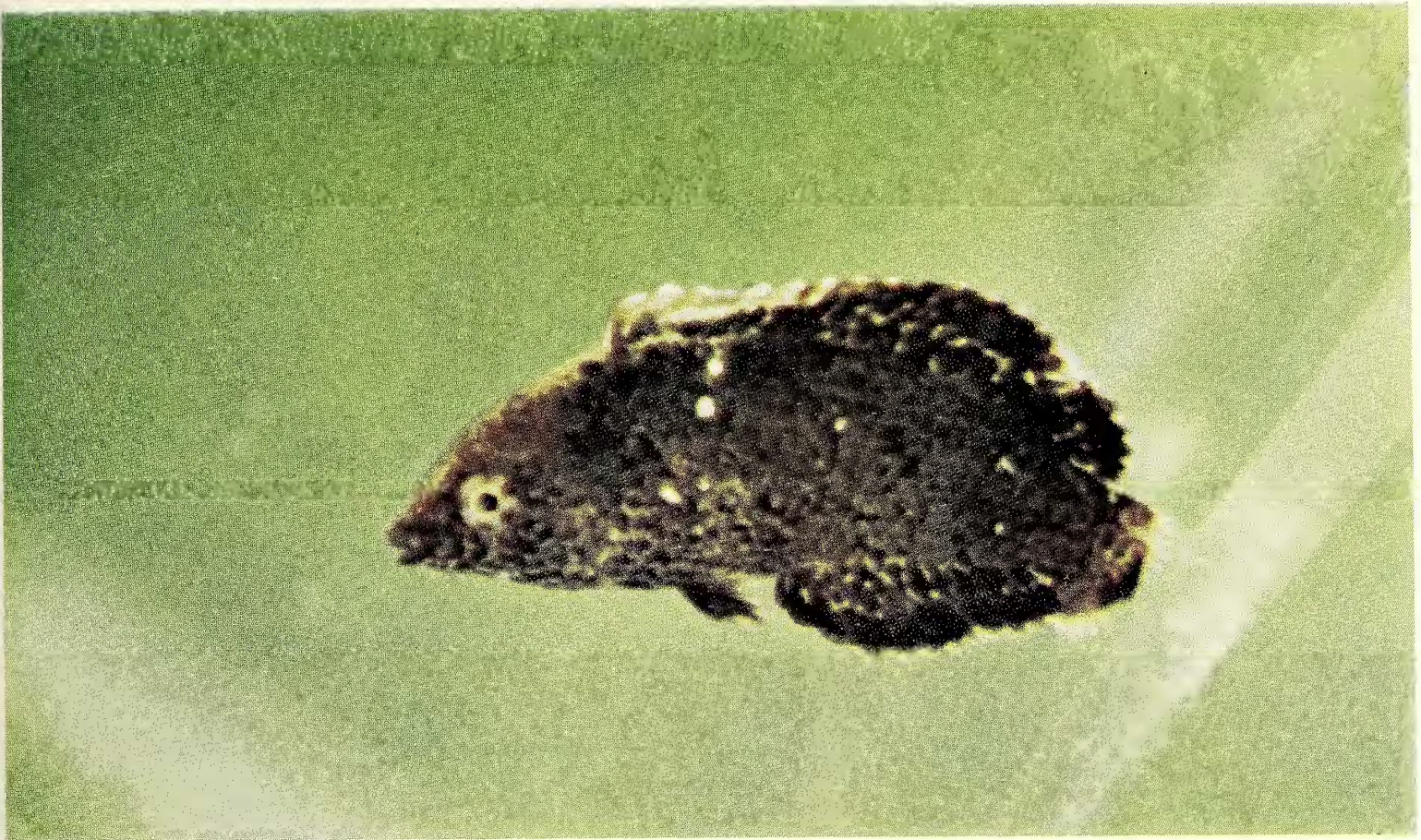


Plate I. The colour patterns of juvenile and intermediate *Anampses caeruleopunctatus* Ruppell, 30—50 mm in length. Photo: A. Wright.



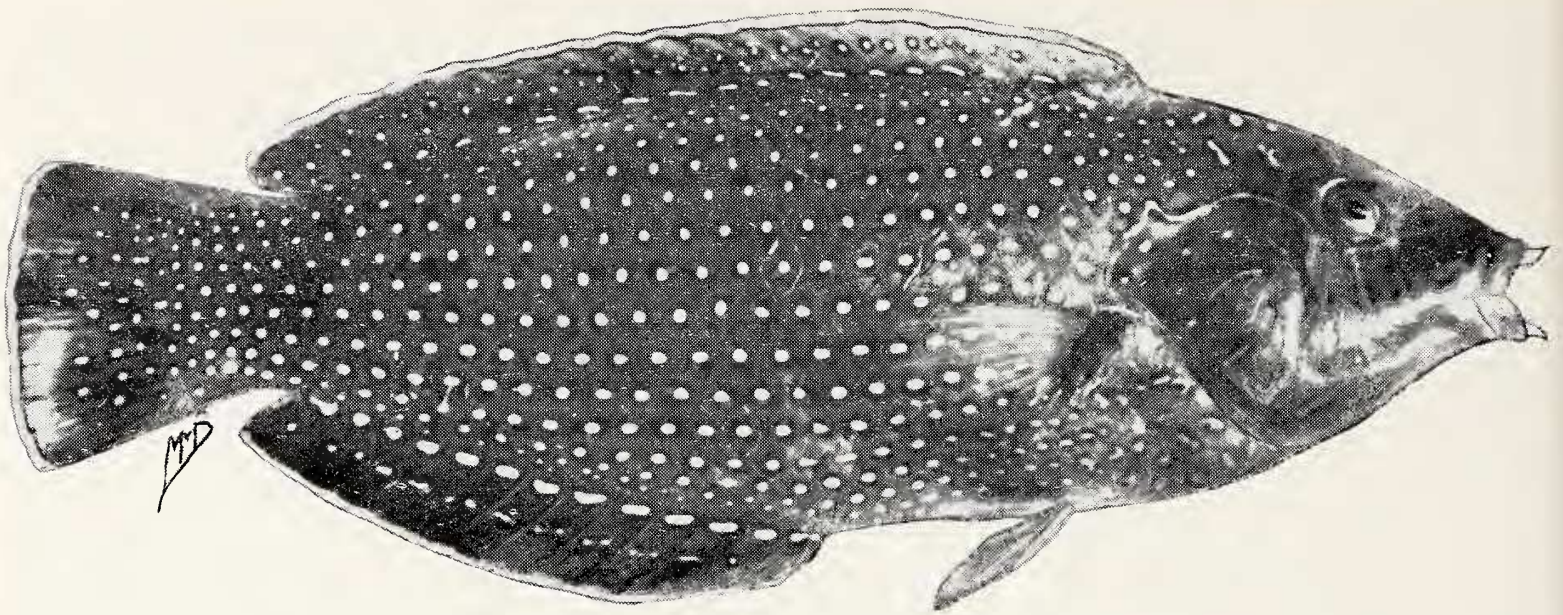


Plate II. The adult colour pattern of *Anampses caeruleopunctatus* Ruppell. Photo: Smith and Smith, 1963.